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Sheet 1 of 1

Form PTO-1449
(REV. 8-83)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

74451.P024C

SERIAL NO.

08/941,466

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

APPLICANT

Zandi, et al.

FILING DATE

9/20/94

GROUP

2723

9/30/97

2640

U.S. PATENT DOCUMENTS

| EXAMINER INITIAL | DOCUMENT NUMBER | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
|---------------------|-----------------|---------|--------------------|-------|----------|-------------------------------|
| TJ | 5347479 | 9/13/94 | Miyazaki | 708 | 400 | 12/22/92 |
| TJ | 5412741 | 5/2/95 | Shapiro | 382 | 232 | 1/24/93 |
| TJ | 5453945 | 9/26/95 | Tucker, et al. | 708 | 400 | 1/24/94 |
| TJ | 5497435 | 3/5/96 | Berger | 382 | 249 | 2/22/93 |
| TJ | 5534925 | 7/9/96 | Zhong | 382 | 240 | 5/2/94 |
| TJ | 5537493 | 7/16/96 | Wildinson | 382 | 240 | 6/29/94 |
| TJ | 5546477 | 8/13/96 | Knowles, et al. | 382 | 242 | 3/30/93 |
| TJ | 5563890 | 10/8/96 | Shapiro | 382 | 239 | 12/17/93 |
| TJ | 5602589 | 2/11/97 | Vishwanath, et al. | 348 | 398 | 8/19/94 |
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FOREIGN PATENT DOCUMENTS

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EXAMINER

Timothy M. Johnson

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| EXAMINER INITIAL | | DOCUMENT NUMBER | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
| TJ | | 4 9 8 5 9 2 7 | 1/15/91 | Norwood et al. | 382 | 149 | |
| TJ | | 4 9 8 7 4 8 0 | 1/22/91 | Lippman et al. | 348 | 396 | |
| TJ | | 5 0 0 0 1 8 3 | 3/19/91 | Bonnefous | 600 | 437 | |
| TJ | | 5 0 0 1 7 6 4 | 3/19/91 | Wood et al. | 382 | 145 | |
| TJ | | 5 0 1 4 1 3 4 | 5/7/91 | Lawton et al. | 358 | 261.3 | |
| TJ | | 5 0 1 8 2 1 0 | 5/21/91 | Merryman et al. | 382 | 145 | |
| TJ | | 5 0 6 8 9 1 1 | 11/26/91 | Resnikoff et al. | 382 | 240 | |
| TJ | | 5 0 7 3 9 6 4 | 12/17/91 | Resnikoff | 382 | 277 | |
| TJ | | 5 0 8 1 6 4 5 | 1/14/92 | Resnikoff et al. | 375 | 146 | |
| TJ | | 5 0 9 5 4 4 7 | 3/10/92 | Manns et al. | 382 | 144 | |
| TJ | | 5 1 0 1 4 4 6 | 3/31/92 | Resnikoff et al. | 382 | 248 | |
| FOREIGN PATENT DOCUMENTS | | | | | | | |
| | | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION YES NO |
| TJ | | 9 4 2 3 3 8 5 | 10/13/94 | PCT | 606F | 15/332 | |
| TJ | | 0 6 2 2 7 4 1 | 3/30/94 | EPO | 606F | 15/332 | |
| TJ | | 2 2 8 4 1 2 1 | 5/24/95 | UK | 1404N | 7126 | |
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| OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) | | | | | | | |
| TJ | | "1977 IEEE International Conference on Acoustics, Speech & Signal Processing", "Application of Quadrature Mirror Filters to Split Band Voice Coding Schemes", D. Esteban and C. Galand, p. 191-195. | | | | | |
| TJ | | Martin Vetterli, "Filter Banks Allowing Perfect Reconstruction", Signal Processing 10 (1986), p. 219-244. | | | | | |
| TJ | | R. E. Crochiere, S. A. Webber, J. L. Flanagan, "Digital Coding of Speech in Sub- bands", 1976, American Telephone and Telegraph Company, The Bell System Technical Journal, Vol. 55, No. 8, October 1976, p. 1069-1085. | | | | | |
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| U.S. PATENT DOCUMENTS | | | | | | | |
| EXAMINER INITIAL | | DOCUMENT NUMBER | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
| TJ | | 5 1 0 3 3 0 6 | 4/7/92 | Weiman et al. | 348 | 400 | |
| TJ | | 5 1 2 1 1 9 1 | 6/9/92 | Cassereau et al. | 348 | 443 | |
| TJ | | 5 1 2 4 9 3 0 | 6/23/92 | Nicolas et al. | 702 | 76 | |
| TJ | | 5 1 2 8 7 5 7 | 7/7/92 | Citta et al. | 348 | 384 | |
| TJ | | 5 1 4 8 4 9 8 | 9/15/92 | Resnikoff et al. | 382 | 248 | |
| TJ | | 5 1 5 2 9 5 3 | 10/6/92 | Ackermann | 266 | 252 | |
| TJ | | 5 1 5 6 9 4 3 | 10/20/92 | Whitney | 430 | 321 | |
| TJ | | 5 1 7 3 8 8 0 | 12/22/92 | Duren et al. | 367 | 73 | |
| TJ | | 5 4 2 0 8 9 1 | 5/30/95 | Akansu | 375 | 360 | 3/18/93 |
| TJ | | 3 5 8 0 6 5 5 | 5/25/71 | Leith et al. | 359 | 28 | |
| TJ | | 3 9 5 0 1 0 3 | 4/13/76 | Schmidt-Weinmar | 356 | 345 | |
| FOREIGN PATENT DOCUMENTS | | | | | | | |
| | | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION YES NO |
| TJ | | 9 6 0 9 7 1 8 | 3/28/96 | PCT | H04N | 1/41 | |
| TJ | | 9 5 1 9 6 8 3 | 7/20/95 | PCT | H04N | 7/26 | |
| TJ | | 0 7 0 1 3 7 5 | 3/13/96 | EPO | H04N | 7/26 | |
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| TJ | | John W. Woods and Sean D. O'Neil, "Sub-band Coding of Images", Proceedings ICASSP 86, Tokyo, Japan, April 1986, p. 1005-1008. | | | | | |
| TJ | | John W. Woods, "Subband Coding of Images", IEEE Transactions on Acoustics, Speech, and Signal Processing, Vol. ASSP-34, No. 5, October 1986, p. 1278-1288. | | | | | |
| TJ | | "Proceedings: ICASSP 87", 1987 International Conference on Acoustics, Speech, and Signal Processing, April 6, 7, 8, 9, 1987, Volume 3 of 4, "Sub-band Coding of Images Using Predictive Vector Quantization", P. H. Westernick, J. Biemond and D. E. Boekee, p. 1378-1381. | | | | | |
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U.S. PATENT DOCUMENTS

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|---------------------|-----------------|----------|-------------------|-------|----------|-------------------------------|
| TJ | 4 1 3 6 9 5 4 | 1/30/79 | Jamieson | 356 | 349 | |
| TJ | 4 2 2 3 3 5 4 | 9/16/80 | Noble et al. | 348 | 724 | |
| TJ | 4 5 9 9 5 6 7 | 7/8/86 | Goupillaud et al. | 324 | 7633 | |
| TJ | 4 6 6 3 6 6 0 | 5/5/87 | Fedele et al. | 348 | 397 | |
| TJ | 4 7 0 1 0 0 6 | 10/20/87 | Perlmutter | 359 | 9 | |
| TJ | 4 7 6 0 5 6 3 | 7/26/88 | Beylkin | 367 | 73 | |
| TJ | 4 7 8 5 3 4 9 | 11/15/88 | Keith et al. | 348 | 390 | |
| TJ | 4 8 0 5 1 2 9 | 2/14/89 | David | 708 | 300 | |
| TJ | 4 8 1 7 1 8 2 | 3/28/89 | Adelson et al. | 382 | 248 | |
| TJ | 4 8 2 1 2 2 3 | 4/11/89 | David | 708 | 308 | |
| TJ | 4 8 2 7 3 3 6 | 5/2/89 | Acampora et al. | 348 | 396 | |

FOREIGN PATENT DOCUMENTS

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| TJ | Mark J. T. Smith and Thomas P. Barnwell, III, "Exact Reconstruction Techniques for Tree-Structured Subband Coders", IEEE Transactions on Acoustics, Speech, and Signal Processing, Vol. ASSP-34, No. 3, June 1986, p. 434-441. |
| TJ | Marvin Vetterli, "Multi-Dimensional Sub-Band Coding: Some Theory and Algorithms", Signal Processing 6 (1984) p. 97-112. |
| TJ | H. Gharavi and Ali Tabatabai, "Sub-band Coding of Digital Images Using Two-Dimensional Quadrature Mirror Filtering", SPIE Vol. 707 Visual Communications and Image Processing p. 51-61. |

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| TJ | | 4 8 2 9 3 7 8 | 5/9/89 | Legall | 348 | 398 | |
| TJ | | 4 8 3 7 5 1 7 | 6/6/89 | Barber | 324 | 339 | |
| TJ | | 4 8 6 4 3 9 8 | 9/5/89 | Avis et al. | 348 | 443 | |
| TJ | | 4 8 9 7 7 1 7 | 1/30/90 | Hamilton et al. | 348 | 404 | |
| TJ | | 4 9 0 4 0 7 3 | 2/27/90 | Lawton et al. | 359 | 851 | |
| TJ | | 4 9 2 9 2 2 3 | 5/29/90 | Walsh | 493 | 56 | |
| TJ | | 4 9 3 6 6 6 5 | 6/26/90 | Whitney | 359 | 565 | |
| TJ | | 4 9 7 4 1 8 7 | 11/27/90 | Lawton | 208 | 420 | |
| TJ | | 4 9 8 2 2 8 3 | 1/1/91 | Acampora | 348 | 410 | |
| TJ | | 4 3 9 3 4 5 6 | 7/12/83 | Marshall, Jr. | 708 | 316 | |
| TJ | | 4 5 6 9 0 7 5 | 2/4/86 | Nussbaumer | 704 | 203 | |
| FOREIGN PATENT DOCUMENTS | | | | | | | |
| | | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION YES NO |
| TJ | | 2 2 1 1 6 9 1 | 7/5/89 | UK | H04N | 7/133 | |
| TJ | | 0 5 9 3 0 1 3 | 4/20/94 | EPO | H04N | 7/13 | |
| TJ | | 0 5 1 0 9 3 3 | 10/28/92 | EPO | H04N | 1/41 | |
| TJ | | 8 8 1 0 0 4 9 | 12/15/88 | PCT | H04N | 7/133 | |
| OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) | | | | | | | |
| TJ | | "Proceedings: ICASSP 87", 1987 International Conference on Acoustics, Speech, and Signal Processing, April 6, 7, 8, 9, 1987, Volume 4 of 4, "Application of Quadrature Mirror Filtering to the Coding of Monochrome and Color Images", H. Gharavi and A. Tabatabai, p. 2384-2387. | | | | | |
| TJ | | International Search Report for Application No.: GB 9518298.6, dated 8 November 1995. | | | | | |
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| TJ | | 4 6 5 2 8 8 1 | 3/24/87 | Lewis | 342 | 160 | |
| TJ | | 4 6 7 4 1 2 5 | 6/16/87 | Carlson et al. | 382 | 303 | |
| TJ | | 4 7 8 5 3 4 8 | 11/15/88 | Fonsalas et al. | 348 | 425 | |
| TJ | | 4 7 9 9 1 7 9 | 1/17/89 | Masson et al. | 208 | 813 | |
| TJ | | 4 8 1 5 0 2 3 | 3/21/89 | Arbeiter | 708 | 301 | |
| TJ | | 4 8 3 9 8 8 9 | 6/13/89 | Gockler | 370 | 210 | |
| TJ | | 4 8 6 8 8 6 8 | 9/19/89 | Yazu et al. | 204 | 205 | |
| TJ | | 4 9 1 8 5 2 4 | 4/17/90 | Ansari et al. | 348 | 398 | |
| TJ | | 5 0 4 9 9 9 2 | 9/17/91 | Citta et al. | 348 | 443 | |
| TJ | | 5 0 4 9 9 9 3 | 9/17/91 | Legall et al. | 348 | 448 | |
| TJ | | 5 0 7 2 3 0 8 | 12/10/91 | Lin et al. | 358 | 426 | |
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| TJ | 5 0 9 7 3 3 1 | 3/17/92 | Chen et al. | 348 | 398 | |
| TJ | 5 1 0 1 2 8 0 | 3/31/92 | Moronaga et al. | 358 | 426 | |
| TJ | 5 1 2 8 7 9 1 | 7/7/92 | Legall et al. | 348 | 469 | |
| TJ | 5 1 8 2 6 4 5 | 1/26/93 | Breeuwer et al. | 348 | 458 | |
| TJ | 5 3 1 5 6 7 0 | 5/24/94 | Shapiro | 382 | 240 | |
| TJ | 5 3 2 1 7 7 6 | 6/14/94 | Shapiro | 382 | 240 | |
| TJ | 5 4 1 2 7 4 1 | 5/2/95 | Shapiro | 382 | 232 | 1/22/93 |
| TJ | 4 1 5 5 0 9 7 | 5/15/79 | Lux | 348 | 420 | |
| TJ | 4 1 9 0 8 6 1 | 2/26/80 | Lux | 348 | 420 | |
| TJ | 5 2 6 2 9 5 8 | 11/16/93 | Chui et al. | 702 | 75 | |
| TJ | 5 4 9 5 2 9 2 | 2/27/96 | Zhang et al. | 348 | 407 | 9/3/93 |

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